Associations between biosecurity level and production and management characteristics in pig production in four EU countries

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HYPOTHESIS: BIOSECURITY MEASURES → DISEASE PREVENTION → IMPROVED HEALTH STATUS → REDUCED NECESSITY ANTIMICROBIALS

RESEARCH QUESTIONS:

SIMILAR LEVEL OF IMPLEMENTATION OF BIOSECURITY IN 4 EU COUNTRIES?

WHICH ASSOCIATIONS ARE THERE BETWEEN BIOSECURITY AND FARM CHARACTERISTICS?

MATERIALS & METHODS

Study design
Retrospective study
Cross-sectional
232 farrow-to-finish
>100 sows, >500 fatteners
Herd visit 2014

Countries
Belgium
France
Germany
Sweden

Production & Technical data
Biosecurity status data (Biocheck.Ugent)
Technical performance data
Herd management data
Sum 5-point Likert scale treatment against disease symptoms (e.g. lameness, respiratory) as proxy for disease incidence

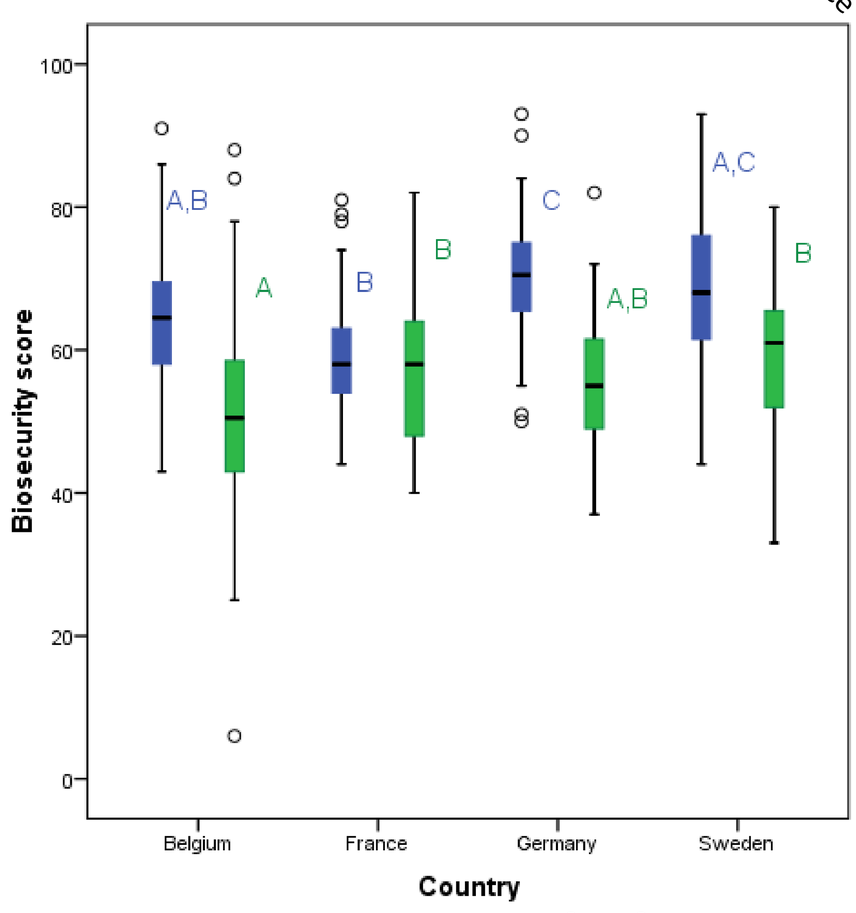
Statistics
ANOVA with Scheffé
Two-sided independent samples Kruskall Wallis
2-way Pearson correlation coefficient
Multivariable linear regression model
Proxi for disease incidence as dependent vs. biosecurity level

RESULTS

Biosecurity status

Large variation:
Between herds
Between countries ($p<0.01$)

External higher than internal



Boxplot for the external (blue) and internal (green) biosecurity score per country. Letters A, B and C correspond to post hoc statistical tests. Different letters indicate a statistical significant difference (ANOVA) between the countries, similar letters indicate that the countries are not statistically significant different.

Associations

Higher internal & external biosecurity: Larger herd size ($p< 0.05$), Higher daily weight gain ($p< 0.05$)

Higher biosecurity: Lower score treatment against certain symptoms as proxy for disease incidence ($p< 0.05$)

No significant association biosecurity – weaned piglets/sow per year, mortality

CONCLUSION

Substantial room for improved biosecurity status pig herds

External biosecurity scores higher than internal biosecurity

Larger herds – better structured? – higher biosecurity

Higher biosecurity – healthier animals? – better daily weight gain

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Follow up & Stay in touch

MINAPIG consortium will investigate alternatives to antimicrobials in depth and implement them in field studies. If you would like to receive updates on MINAPIG research, please visit www.minapig.eu